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Geomagnetic field variations in central Europe over the last 12 000 years from Lake Naroch (Belarus) sediments

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Abstract

Results of studying bottom deposits of Lake Naroch in Belarus are discussed. Six cores up to 5.88 m thick taken by a special corer that does not disturb the structure and integrity of sediments. All of the study cores showed good agreement between variations in the declination and inclination of the ChRM vector extracted by the alternating field (AF) demagnetization. Absolute ages of the sediments and the along-core time scales were obtained from 14C data and correlation with archaeomagnetic data from central Europe over the last 2000 years. The inferred data are used for constructing variation curves of inclination and declination in this region covering a 12-kyr period. The results are compared with paleovariations in geomagnetic field elements in Western Europe. A 700-year shift is discovered between the ages of magnetization and the sediments. The postdepositional magnetization smoothed the amplitudes of variations recorded in the sediments.